

L 52965-65

ACCESSION NR: AP5010519

is violated only in five of 31 cases. Four out of the five violations are in compounds of carbon, and this is apparently connected with very complicated spatial configuration of these molecules. The measurement procedure and a detailed discussion of the results will be published later. Orig. art. has: 3 tables.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

SUBMITTED: 26Dec64

ENCL: 00

SUB CODE: MP

NR RKF Sov: 001

OTHER: 008

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Card 2/2

L 52966-65	ENT(m) Feb DIAAF	
ACCESSION NR:	MF5010520	UR/0056/65/043/004/1199/1199 21
AUTHOR:	Bobrov, V. D.; Varlamov, V. G.; Grashin, Yu. M.; Dolgachev, B. A.; Kirillov-Ugryumov, V. G.; Roganov, V. S.; Samoylov, A. V.; Semenov, S. V.	
TITLE:	Capture of negative muons by pure chromium and nickel isotopes 19	
SOURCE:	Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 4, 1965, 1199-1199	
TOPIC TAGS:	muon, chromium, nickel, muon capture, proton subshell, neutron subshell, muon lifetime, capture rate	
ABSTRACT:	The authors point out that data on muon capture by nuclei can be used as a tool for the study of the structure of the nucleus, and have therefore investigated muon capture by nuclei with closed neutron or proton subshells, in the form of isotopes of Cr with mass numbers 50, 52, 53, and 54 (Cr <sup>52</sup> has a closed neutron subshell) and Ni isotopes with mass numbers 58, 60, and 62 (which have a closed proton subshell). The isotope enrichment runs from 78.5 to 99%. The muon beam from the OIYaI (Joint Institute of Nuclear Research) synchrocyclotron was used for the experiments. The total muon capture probability was determined by measuring;	
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ACCESSION NR: A501020																							
<p>the lifetimes of the muons on the K orbit of the corresponding atom. The experimental results by processing the corresponding time distributions with a computer are:</p> <table border="1"> <thead> <tr> <th>Nucleus:</th> <th><math>\text{Cr}^{44}</math></th> <th><math>\text{Cr}^{46}</math></th> <th><math>\text{Cr}^{48}</math></th> <th><math>\text{Cr}^{50}</math></th> <th><math>\text{Ni}^{64}</math></th> <th><math>\text{Ni}^{66}</math></th> <th><math>\text{Ni}^{68}</math></th> </tr> </thead> <tbody> <tr> <td>Capture rate <math>10^5 \text{ sec}^{-1}</math></td> <td><math>38.25 \pm 0.50</math></td> <td><math>34.52 \pm 0.47</math></td> <td><math>32.97 \pm 0.45</math></td> <td><math>30.57 \pm 0.42</math></td> <td><math>61.10 \pm 1.05</math></td> <td><math>55.62 \pm 0.97</math></td> <td><math>47.18 \pm 0.85</math></td> </tr> </tbody> </table>								Nucleus:	$\text{Cr}^{44}$	$\text{Cr}^{46}$	$\text{Cr}^{48}$	$\text{Cr}^{50}$	$\text{Ni}^{64}$	$\text{Ni}^{66}$	$\text{Ni}^{68}$	Capture rate $10^5 \text{ sec}^{-1}$	$38.25 \pm 0.50$	$34.52 \pm 0.47$	$32.97 \pm 0.45$	$30.57 \pm 0.42$	$61.10 \pm 1.05$	$55.62 \pm 0.97$	$47.18 \pm 0.85$
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<p>A detailed discussion of the results and of the measurement procedure will be published later. Orig. art. has: 1 table.</p>																							
<p>ASSOCIATION: <u>Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)</u></p>																							
SUBMITTED: 26Dec64	ENCL: 00			SUB CODE: MP																			
MR REF Sov: 000	OTHER: 000																						
<p><i>[Handwritten signature]</i> Card 2/2</p>																							

L 24363-66 EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/EWP(t) IJP(c) JD/WH  
ACC NR: AP6008116 SOURCE CODE: UR/0139/66/000/001/0142/0148

AUTHORS: Nekrasov, M. M.; Samoylov, A. V.

52  
B

ORG: Kiev Polytechnic Institute (Kievskiy politekhnicheskiy institut)

TITLE: Investigation of the piezoelectric constants of polycrystalline ferroelectrics of the barium-titanate type

SOURCE: IVUZ. Fizika, no. 1, 1966, 142-148

TOPIC TAGS: barium titanate, ferroelectric material, piezoelectric modulus, ternary alloy, temperature dependence

ABSTRACT: The measurements were made on polycrystalline samples of rectangular form, polarized in the direction of the z axis. The sample technology preparation was described elsewhere (FTT v. 2, No. 8, 1681, 1960). The alternating field was applied in the same direction. The resonance and antiresonance frequencies of the longitudinal oscillations excited in the samples were measured with the aid of a heterodyne wave meter. The measurements were made by both static and

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L 24363-66  
ACC NR: AP6008116

dynamic methods, with the piezoelectric moduli perpendicular to the polarization axis ( $d_{31}$ ) determined from measurements of 100 samples of 30 compositions. The greatest piezoelectric modulus was found to be possessed by the systems  $\text{Ba}(\text{Ti}, \text{Zr}, \text{Sn})\text{O}_3$  and  $\text{Ba}(\text{Ti}, \text{Si}, \text{Sn})\text{O}_3$ . All ternary systems with zirconium and silicon were found to possess similar piezoelectric properties, zirconium producing a somewhat larger piezoelectric effect than silicon. The strongest piezoelectric properties were found to be when the percentages of Ti, Zr, and Sn were 0.85, 0.11, and 0.04 respectively for the zirconium and 0.9, 0.06, and 0.04 for the silicon. The piezomoduli  $d_{31}$  for the ternary systems were larger than for barium titanate. No noticeable difference was observed between the results of static and dynamic measurements. The static measurements were made on 15 systems of polycrystalline ferroelectrics with 55 different compositions. In addition, the temperature dependence of the piezoelectric modulus  $d_{31}$  on the ceramic sintering temperature was investigated, and was found to increase with increasing sintering temperature, up to about 1450°C.

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L 24363-66

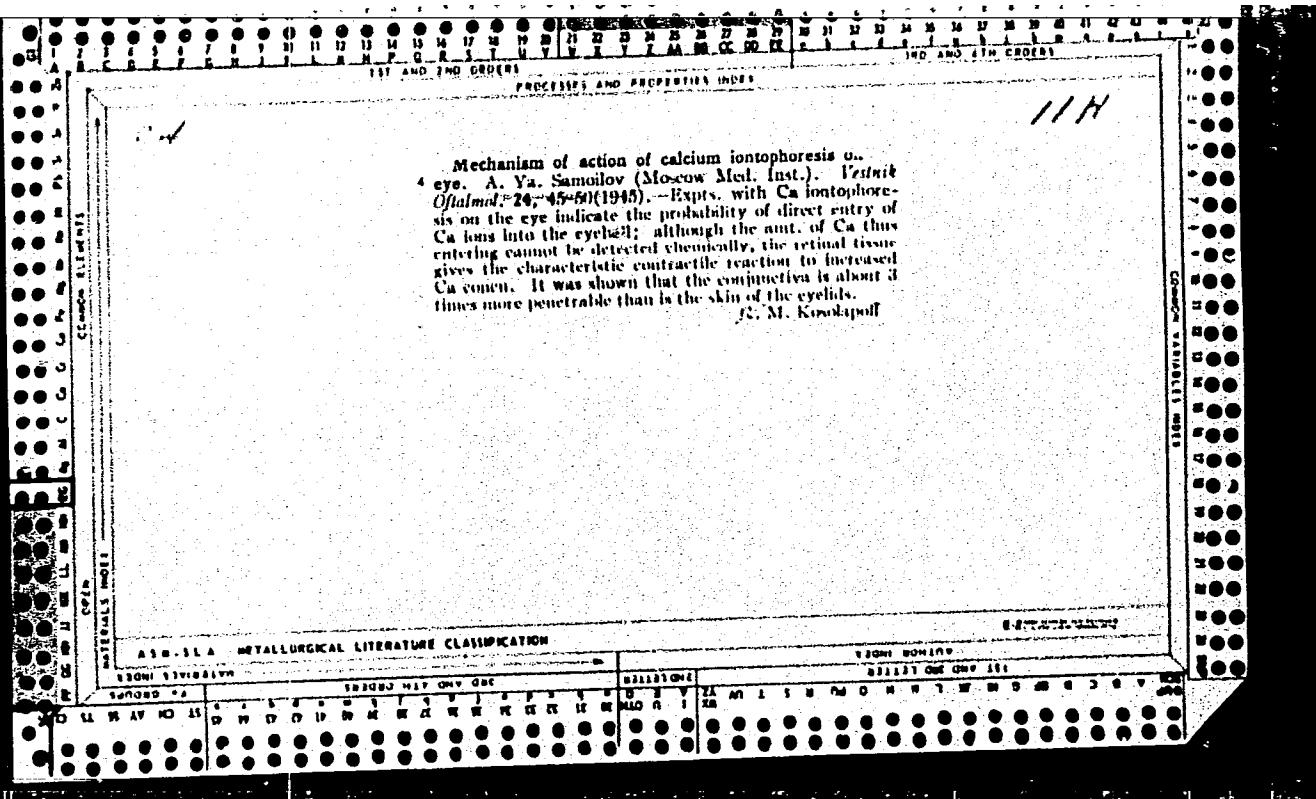
ACC NR: AP6008116

after which no further increase occurred. The temperature of the annealing of the ceramic also exerts a strong influence, since it affects the character of the crystalline phase. Orig. art. has:  
4 figures, 2 tables, and 1 formula.

SUB CODE: 20/ SUBM DATE: 22Nov63/ ORIG REF: 004/ OTH REF: 001

Card

3/3 pla



SAMOVLOV, A. YA.

Samoylov, A. Ya. "On the localization and extraction of intra-ophthalmic foreign bodies," Sbornik nauch. rabot, posvyashch. pamyati akad. Aberbakha, Moscow-Leningrad, 1948, p. 154-60

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 3, 1949)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R001447010002-2

SAMOYLOV, A YA.

26/77 Heskol'ko printsipial'nykh soobrashcheniy otnositelno prepodavaniya oftalmologii  
Vestnik oftalmologii, 1949, No. 4, s. 3-7

SO: LETOPIS' NO. 35, 1949

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R001447010002-2"

SAMOYLOV, A.Ya.

Campimetry in diagnosis of retinal edema. Vopr. klin. eksper. oft.,  
Moskva no. 1:41-49 1952. (CLML 22:4)

1. Moscow.

SAMOYLOV, A.Ya.; DOBRONYSLOV, A.N.

Experimental study on development of reactive hypertension of the eye. Vopr. klin. eksper. oft., Moskva no. 1:50-63 1952. (CLML 22:4)

1. Professor for Samoylov. Fellow of the Academy of Medical Sciences USSR for Dobromyslov. Z Moscow.

SAMOYLOV, A. Ye.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr. 1954)

Name	Title of Work	Nominated by
<u>Samoylov, A. Ye.</u>	"Cotton Growing" Textbook	Ministry of Agriculture Uzbek SSR

SO: W-30604, 7 July 1954

A  
SAMOYLOV, A. Ya., chlen-korrespondent.

[Hygiene of sight] Gigiena zreniya. Moskva, Izd-vo "Znanie," 1953. 39 p.  
(MLRA 6:5)

1. Akademiya meditsinskikh nauk SSSR.

(Sight)

SAMOYLOV, A. Ya.; PANTIYELEVA, V. M.

Neuro-ophthalmologic frontobasal syndrome in clinical cases of  
arachnoid endotheliomas. Vop.neirokhir. 18 no.6:17-23 N-D '54.  
(MLRA 8:4)

1. Iz Nauchno-issledovatel'skogo ordena Trudovogo Kraenogo Znameni  
instituta neyrokhirurgii imeni akad. N. N. Burdenko Akademii medi-  
tsinskikh nauk SSSR. 2. Chlen-korrespondent Akademii meditsinskikh  
nauk SSSR (for Samoylov)

(ARACHNOID, neoplasms,  
fronto-basal, visual manifest.)

(VISION,  
disord. in fronto-basal arachnoid endothelioma)

SAMOYLOV, A.Ya.; DOBKOMYSLOV, A.N.

Role of the cerebral cortex in the development of reactive ocular hypertonia. Probl. fiziol.opt. 11:191-196 '55. (MIRA 9:6)

1. Glaznaya klinika 1-go Moskovskogo meditsinskogo instituta.  
(EYE, physiology,  
tension, cerebrocortical regulation (Rus))  
(CEREBRAL CORTEX, physiology,  
regulation of intraocular pressure (Rus))

SAMOYLOV, A.Ya.

SAMOYLOV, A.Ya., professor.

Method of quantitative measurement of edema of the optic papilla. Vop.neirokhir. 19 no.5:28-36 S-O '55 (MLRA 8:11)

1. Iz Nauchno-issledovatel'skogo ordena Trudovogo Krasnogo Znameni instituta neurokhirurgii imeni akad. N.N.Burdenko Akademii meditsinskikh nauk SSSR. 2.Chlen-kerrespondent AMN SSSR.  
(OPTIC NERVES, diseases,  
papilledema, method of measurement of edema)

SAMOYLOV, A.Ya., professor

Method of determining the degree of affection of the optic tract.  
Vop.neirokhir. 20 no.3:17-24 My-Je '56. (MLRA 9:8)

1. Iz Nauchno-issledovatel'skogo ordena Trudovogo Krasnogo Znameni  
instituta neyrokhirurgii imeni akad. N.N.Burdenko Akademii medi-  
tsinskikh nauk SSSR. 2. Chlen-korrespondent Akademii meditsinskikh  
nauk SSSR

(NERVES, OPTIC, neoplasma  
diag.)

SAMOYLOV, A.Ya.

"Diseases of the optic tract." B.Zh.Tron. Reviewed by A.IA.Samoilov.  
Vop.neirokhir. 20 no.5:61-62 S-0 '56. (MIRA 9:11)  
(OPTIC NERVE--DISEASES) (TRON, B.Zh.)

SAMOYLOV, A.Ye., professor (Moskva); AZAROVA, N.S., professor (Simferopol')

Methods for an effective treatment of tuberculosis of the eye.  
Sov.med. 21 no.6:62-70 Je '57. (MLRA 10:9)  
(TUBERCULOSIS, OCULAR, ther.)

SAMOYLOV, A.Ya., prof.; SHAKHNOVICH, A.R.

A new method of local pupillography and its use in physiology and  
clinical practice. Vest. AMN SSSR 13 no.4:47-58 '58. (MIRA 11:4)

1. Chlen-korrespondent AMN SSSR (for Samoylov)  
(PUPILS  
pupillography, new method (Rus))

SAMOYLOV, A.Ya., prof., SHAKHOVICH, A.P.

Local pupillography in neuro-ophthalmological diagnosis. Vop.  
neirokhir. 22 no.3:20-25 My-Je '58 (MIRA 11:8)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni  
institut neyrokhirurgii imeni akad. N.N. Burdenko AMN SSSR.  
(PUPILS,  
pupillography, diag. value (Rus))

SAMOYLOV, A.Ya.

Trigemino-sympathetic ocular syndromes [with summary in English,  
p.54]. Vop.neirokhir. 22 no.6:11-15 N-D '58. (MIRA 12:2)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni  
institut neurokhirurgii imeni akad. N.N. Burdenko AMN SSSR.

(EYE DISEASES,

trigemino-sympathetic ocular synd. (Rus))

(TRIGEMINAL NEURALGIA,

same)

(SYMPATHETIC NERVOUS SYSTEM, dis.

same))

SAMOYLOV, Aleksandr Yakovlevich, red.

[Ophthalmological symptoms in brain tumors] Oftal'mologicheskie simptomy opukholei golovnogo mozga. Moskva, Medgiz, 1959. 227 p.  
(MIRA 13:4)

(BRAIN--TUMORS) (EYE)

SAMOYLOV, A.Ya., prof.

Vasilii Vasil'evich Chirkovskii, eminent scientist in Soviet  
ophthalmology; obituary. Vop. klin. i eksp. oft. no.2:3-16  
'59. (MIRA 14:11)  
(CHIRKOVSKII, VASILII VASIL'EVICH, 1875-1956)

SAMOYLOV, A.Ya., prof.

Quantitative papillometry in papilledema. Oft. zhur. 14 no.1:5-10  
'59. (MIRA 12:6)

1. Chlen-korrespondent AMN. Institut neyrokhirurgii im. Burdenko AMN  
SSSR.  
(OPTIC NERVE--DISEASES)

SAMOYLOV, A.Ya., prof.; SHAKHNOVICH, A.R., kand.med.nauk

Specific orientation and protective reactions of the pupil. Vest.  
AMN SSSR 14 no.4:36-44 '59. (MIRA 14:5)

1. Chlen-korrespondent AMN SSSR (for Samoylov).  
(PUPIL (EYE))

SAMOYLOV, A.Ya., prof.; SIVOSHINSKIY, D.S. (Moskva)

Professor Adrian Aleksandrovich Kriukov, founder of the Moscow  
ophthalmological school; on the 50th anniversary of his death.  
Klin.med. 37 no.10:135-138 O '59. (MIRA 13:2)  
(BIOGRAPHIES)  
(OPHTHALMOLOGY)

SAMOYLOV, A.Ya.

Study of pupillary orientation reactions to light. Biul. eksp.  
i biol. med. 50 no. 8:33-37 Ag '60. (MIRA 13:10)

1. Predstavlena deystvitel'nym chlenom AMN SSSR V.V. Parinym.  
(PUPIL (EYE)) (REFLEXES)

SAMOYLOV, A.Ya.; SOKOLOVA, O.N.; SHAKHNOVICH, A.R.

Pupillographic method of studying the act of convergence.  
Biofizika 6 no. 1:84-90 '61. (MIRA 14:2)

1. Nauchno-issledovatel'skiy institut neyrokhirurgii im.akad.  
N.N. Burdenko AMN SSSR, Moskva.  
(EYE MOVEMENTS)

SAMOYLOV, A.Ya., prof.; SOKOLOVA, O.N., kand.med.nauk (Moskva)

Paradoxical reaction of the pupils in hydrocephalus. Vop.neyrokhir. 25 no.1:70-73 '62. (MIRA 15:1)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni instituta neyrokhirurgii imeni akad. N.N. Burdenko AMN SSSR.  
(HYDROCEPHALUS) (PUPIL (EYE))

SAMOYLOV, Aleksandr Yakovlevich, prof.; YUZEFOWA, Fani Iosifovna,  
prof.; AZAROVA, Nadezhda Sergeyevna, prof.; DYMSHITS, L.A.,  
red.; LEBEDEVA, Z.V., tekhn. red.; KHARASH, G.A., tekhn. red.

[Tuberculous diseases of the eyes] Tuberkuleznye zabolevaniia  
glaz. Leningrad, Medgiz, 1963. 255 p. (MIRA 16:7)

1. Chlen-korrespondent AMN SSSR (for Samoylov).  
(EYE--TUBERCULOSIS)

SAMOYLOV, A.Ya., prof.; SOKOLOVA, O.N., kand.med.nauk; SHAKHINOVICH, A.R.,  
kand.med.nauk

Pupillographic analysis of the normal reaction of the pupil to  
light. Vop. neirooft. 2:3-16 '63. (MIRÄ 16:8)

1. Chlen-korrespondent AMN SSSR (for Samoylov).  
(PUPIL (EYE)) (EYE--EXAMINATION)  
(MOTION PICTURE PHOTOGRAPHY, MEDICAL)

SAMOYLOV, A.Ya., prof.; SOKOLOVA, O.N., kand. med. nauk

Diagnostic role of visual disorders in papilledema. Vop. neirokhir. no.1:16-21 '65. (MIRA 18:10)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirurgii imeni N.N. Burdenko (direktor - prof. A.I. Arutyunov) AMN SSSR, Moskva.
2. Chlen-korrespondent AMN SSSR (for Samoylov).

GALITSINSKIY, Panteleymon Konstantinovich; DEMIDOV, Sergey Ivanovich;  
OBUKHOV, Mikhail Nikolayevich; SAMOYLOV, Andrey Yemel'yanovich;  
GRUSHKIN, A., red.; ABBASOV, T., tekhn. red.

[Cotton varieties in Uzbekistan; results of state variety testing for 1950-1959] Sorta khlopchatnika v Uzbekistane; itogi gosudarstvennogo sortoispytaniia za 1950-1959 gg. Tashkent, Gosizdat, UzSSR, 1962. 219 p. (MIRA 15:7)  
(Uzbekistan--Cotton--Varieties)

SAMOYLOV, B.A.; ALIMKIN, N.I.

Improve the organization of the system of enterprises serving  
public needs of the population of Moscow. Gor.khoz.Mosk. 33  
no.10:4-10 0 '59. (MIRA 13:2)

1. Nachal'nik Upravleniya bytovogo i kommunal'nogo obsluzhivaniya  
Mosgorispolkoma (for Samoylov). 2. Glavnyy inzhener Upravleniya  
bytovogo i kommunal'nogo obsluzhivaniya Mosgorispolkoma (for  
Alimkin).

(Moscow--Public services)

~~SAMOYLOV, B.A.~~, TIRBAKH, O.G.; KHAVIN, M.N.; SHKURUM, N.V.; BONDAREVSKIY,  
D.I., redaktor; RACHEVSKAYA, M.I., redaktor izdatel'stva;  
PETROVSKAYA, Ye.S., tekhnicheskiy redaktor.

[Operation and repair of MTV-82 streetcars] Opyt ekspluatatsii i  
metody remonta tramvainykh vagonov MTV-82. Moskva, Izd-vo M-va  
kommun.khoz. RSFSR, 1957. 78 p. (MLRA 10:7)  
(Streetcars--Maintenance and repair)

SAMOYLOV, Boris Alekseyevich; TIRBAKH, Oleg Georgiyevich; SHKROUM,  
Nikolay Vasil'yevich; BELOSTOTSKIY, I.A., red.; TEL'KOV, N.V.,  
red.izd-va; PYRKINA, N.P., tekhn.red.

[Over-all mechanization of maintenance and repair operations of  
streetcars; from the practices of the Apakov Depot of the Moscow  
Passenger Transportation Authority] Kompleksnaiia mekhanizatsiia  
remonta tramvainykh vagonov; iz opyta raboty tramvainogo depo  
im. Apakova Upravlenia passazhirskogo transporta Moskvy. Moskva,  
Izd-vo M-va kommun.khoz.RSFSR, 1960. 101 p.

(MIRA 14:4)

(Moscow--Streetcars--Maintenance and repair)

SAMOYLOV, B.A.; ALIMKIN, N.I.

Let's exemplarily organize the system of enterprises serving public needs. Gor. khoz. Mosk. 35 no.2:23-25 F '61. (MIRA 14:2)

1. Nachal'nik Upravleniya bytovogo i komunal'nogo obsluzhivaniya Mosgorispolkoma (for Samoylov). 2. Zamestitel' nachal'nika Upravleniya bytovogo i komunal'nogo obsluzhivaniya Mosgorispolkoma (for Alimkin).

(Moscow--Municipal services)

SAMOYLOV, Boris Alekseyevich; TIRBAKH, Oleg Georgiyevich; SHKRM, Nikolay Vasil'yevich; RACHEVSKAYA, M.I., red. izd-va; KHENOKH, E.M., tekhn. red.

[ "Tatra-2" streetcars] Tramvainye vagony "Tatra-2." Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1962. 167 p. (MIRA 15:10)  
(Streetcars--Design and construction)

SAMOYLOV, Boris Alekseyevich; TIRBAKH, Oleg Georgiyevich; KHAVIN,  
Mikhail Nikolayevich; SHKRUN, Nikolay Vasil'yevich;  
BELOSTOTSKIY, I.A., red.

[The RVZ-6 streetcar] Tramvainyi vagon RVZ-6. Moskva,  
Stroizdat, 1964. 167 p. (MIRA 17:7)

RIVKIN, G. M., SAMOYLOV, B. I.

Turning

Finishing turning with tools equipped with a removable cutting surface.  
Stan. i instr. 23, No. 4, 1952

9. Monthly List of Russian Accessions, Library of Congress, November 1952 ~~1953~~, Uncl.

RYVKIN, G.M.; SAMOYLOV, B.I.

Kinematic crushing of shavings in grinding. Stan. i instr. 24 no.12:  
15-16 D '53. (MIRA 7:1)

(Metal cutting)

RYVKIN, G.M.; SAMOYLOV, B.I.

Cutting tools for automatic machining. Stan. i instr. 26 no.11:  
18-23 N '55. (Cutting tools) (MIRA 9:2)

ACC NR: AP6029077

SOURCE CODE: UR/0413/66/000/014/0133/0133

INVENTORS: Samoylov, B. I.; Akimov, A. V.

ORG: none

TITLE: A cutting tool with a mechanically fixed polygonal cutting plate. Class 49,  
No. 184102

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 133

TOPIC TAGS: metalworking, mechanical metal cutting, metal machining

ABSTRACT: This Author Certificate presents a cutting tool with a mechanically fixed polygonal cutting plate of either a hard alloy or a mineral ceramic. The cutter contains an open recess below the plate in the holder and a plate provided with a central opening (see Fig. 1). To secure a rigid and positive hold on a plate of any size (starting with very small ones) and in any cutting conditions, the plate is wedged along one of its sides between an immobile cylindrical rod placed in the recess of the holder (and passing through the opening in the plate) and the lateral side of the recess by a wedge-shaped insert with a holding screw.

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UDC: 621.9.025.7

ACC NR: AP6029077

SOURCE CODE: UR/0413/66/000/014/0133/0133

INVENTORS: Samoylov, B. I.; Akimov, A. V.

ORG: none

TITLE: A cutting tool with a mechanically fixed polygonal cutting plate. Class 49,  
No. 184102

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 133

TOPIC TAGS: metalworking, mechanical metal cutting, metal machining

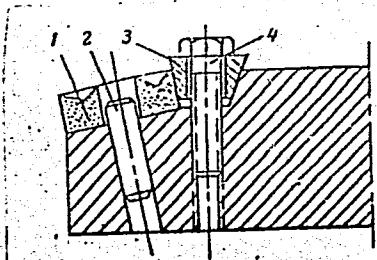
ABSTRACT: This Author Certificate presents a cutting tool with a mechanically fixed polygonal cutting plate of either a hard alloy or a mineral ceramic. The cutter contains an open recess below the plate in the holder and a plate provided with a central opening (see Fig. 1). To secure a rigid and positive hold on a plate of any size (starting with very small ones) and in any cutting conditions, the plate is wedged along one of its sides between an immobile cylindrical rod placed in the recess of the holder (and passing through the opening in the plate) and the lateral side of the recess by a wedge-shaped insert with a holding screw.

Card 1/2

UDC: 621.9.025.7

ACC NR: AP6029077

Fig. 1. 1 - plate; 2 - cylindrical rod;  
3 - wedge-shaped insert; 4 - holding  
screw



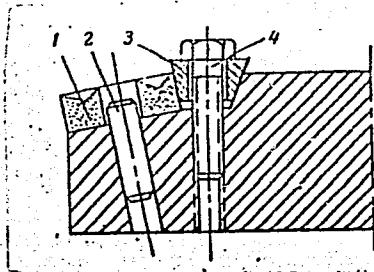
Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 28Apr59

Card 2/2

ACC NR: AP6029077

Fig. 1. 1 - plate; 2 - cylindrical rod;  
3 - wedge-shaped insert; 4 - holding  
screw



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 28Apr59

Card 2/2

SAMOYLOV, B. N.

42027 SAMOYLOV, B. N. - Spektry poglo--shcheniya i loyominstsentsii uranilovykh  
soley pri temperature zhitskogo gelyza. Zhurnal eksperim. i teoret fiziki,  
1948. Vyp. 11, s. 1030-40. - Bibliogr: 6 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

SAMOYLOV, B. N.

42027 SAMOYLOV, B. N. - Spektry poglo--shcheniya i loyominestsentsii yranilovykh soley pri temperaturre zhitskogo geliya. Zhurnal eksperim. i teoret fiziki, 1948. Vyp. 11, s. 1030-40. - Bibliogr: 6 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

SAMOYLOV, B. N.

PA 19/49T85

USSR/Physics

Spectra, Absorption

Luminescence

Sep/Oct 48

"Absorption Spectra and Luminescence of Uranyl Salts at the Temperature of Liquid Helium," B. N. Samoylov, Inst of Phys Problems, Acad Sci USSR, 1<sup>1/2</sup> pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIII, No 5

Spectra of uranyl sulfate, potassium-uranyl-sulfate, uranyl chloride, uranyl acetate, and sodium-uranyl-acetate were investigated at temperature of liquid helium. Summarizes results. Paper will appear in full in "Zhur Eksper i Tekh Fiz."

19/49T85

SAMOYLOV, B. N.

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USSR/Physics  
Spectra, Absorption  
Luminescence

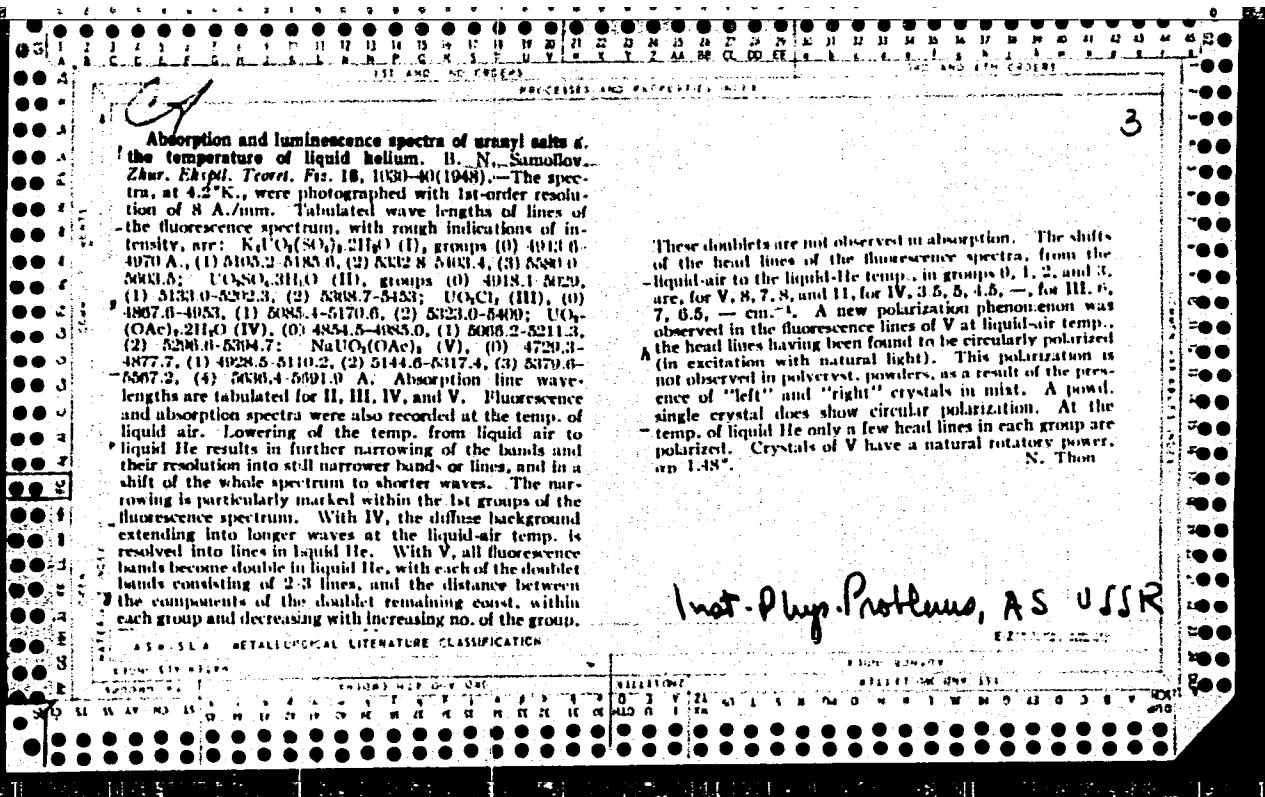
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19/49T85



*CH*

**Unsolved problems of the semiconductor theory.** A. F. Ioffe, *Izv. Akad. Nauk S.S.R., Ser. Fiz.* 15, 477-86 (1951).—The existence of liquid semiconductors makes inadequate the present theory based on a periodicity of the crystal lattice. Examples of the semiconducting nature of liquids are given: the temp. coeff. of cond. of  $\text{Ti}_2\text{S}$ ,  $\text{Sb}_2\text{O}_3$ ,  $\text{Bi}_2\text{O}_3$ ,  $\text{Na}_2\text{Te}_2$ , and  $\text{Na}_2\text{Te}_4$  remains the same in the solid or the liquid state; however, when fusion is accompanied by a change in the nature of chem. bonds or coordination no. (Ge, Se), there is an abrupt change in cond. and temp. coeff. Ge becomes metallic; Se remains a semiconductor with an enlarged forbidden zone; liquid Te gradually goes over from a semiconductive to a metallic state. Thus semiconducting

properties are attributed to short-range forces. These short-range forces appear even in the gaseous state, since the type of chem. bonds affects the zonal structure in the crystal. In ionic crystals the surplus of one or the other component leads to n- or p-type cond. ( $\text{Ti}_2\text{S}$ ,  $\text{PbS}$ ,  $\text{Mg}_2\text{Sb}_3$ ). In covalent crystals ( $\text{ZnSb}$ ) the type of cond. remains the same regardless of the surplus element. For recombination of an electron with a hole an energy barrier has to be overcome similar to the formation of neg. ions in gas discharges. The movement of electrons in the crystal is not a function of  $m_e$  (mass of free electron) but of  $m^*$  ("effective" mass of the electron). The "effective" mass can be calculated from simultaneous measurements of the Hall const. and the thermoelectric force. Ioffe tabulates it for diamond-type lattices ( $\text{Si}^+$ ,  $\text{Si}^-$ ,  $\text{Ge}^+$ ,  $\text{HgSe}^+$ ,  $\text{HgTe}^+$ ,  $\text{InSb}^+$ ) and shows that the "effective" mass is equal to the "free" mass for  $\text{Si}^+$ ,  $\text{Si}^-$ ,  $\text{InSb}^+$ , and  $\text{HgTe}^+$ , is a small fraction of this mass in  $\text{Ge}^+$ ,  $\text{HgSe}^+$ ,  $\text{HgTe}^+$ , and  $\text{CdTe}^+$ , and is many times greater in  $\text{TiO}_2^+$ ,  $\text{WO}_4^+$ , and  $\text{Se}^+$ . Metals can also have "hole" cond. or mixed electron and hole cond. S. Pakswar

**Superconductivity of cadmium.** B. N. Samdov (S. I. Vavilov Inst. Phys. Problems, Moscow). *Izv. Akad. Nauk S.S.R.* 81, 701-4 (1951).—Measurements below 0.6° K. were made by a method consisting in recording the changes of the ohmic resistance, through the e.m.f. induced in a circuit coupled inductively with the circuit contg. the sample mounted as a shunt. With a residual resistance of the sample of the order of  $10^{-8}$  ohm and a current of  $\sim 10^{-9}$  amp., the change of the signal in the induced circuit at the superconductive transition is of the order of  $10^{-6}$  v., as against a change of the potential drop on the sample itself of only  $10^{-9}$  v. The plot of the crit. magnetic field  $H_c$  as a function of the temp.  $T$  is satisfactorily described by  $H_c = H_0 [1 - (T/T_c)^3]$ , and gives the numerical data: crit. temp.  $T_c = 0.547 \pm 0.005$  K.,  $H_0 = 28.4 \pm 0.3$  gaussines, and  $rH_0^2/2\pi T_c^2 = 1 - (1.33 \pm 0.03) \times 10^{-4}$  cal./mole (degree)<sup>2</sup> N. Thom

*S4107204*

*C.N.*

*Superconductivity of Cadmium. B. N. Semyorov (Doklady Akad. Nauk S.S.R., 1951, 81, (5).)* In a previous paper, S. investigated the dependence of the critical field,  $H_c$ , for Cd on the temp.,  $T$ , at temp. below 1° K. by using an inductive circuit to record the change in ohmic resistance  $R$  of the specimen instead of measuring its abs. value. This method had the advantages that: with a residual  $R$  of  $\sim 10^{-6}$  Ω and a current through the specimen of  $\sim 10^{-3}$  amp, a change in signal of  $\sim 10^{-4}$  V. was obtained instead of the change of  $\sim 10^{-8}$  V. in the specimen; that there was no dijet connection between specimen and measuring instruments by which heat could be conducted; and that the experiment was simpler and only a small quantity of metal was required. The specimen consisted of a Cd wire (0.4 mm. in dia, length 10 mm.), soft soldered at the upper end to a Cu wire (1.6 mm. in dia., 6 mm. long) brazed to Cu plates (8 cm.<sup>2</sup> surface) pressed into a rock-salt support at the end of a glass tube. The specimen and two coils of Pb wire ( $\sim 10$  turns each, wound round the glass tube, dia.  $\sim 12$  mm.) were connected in || in the circuit

also contained two small resistances ( $\sim 10^4$  Ω). This assembly was sealed inside another glass tube contg. a small amount of He. On a 20-mm. dia. charite cylinder around this were wound primary (2000 turns) and secondary (two oppositely-wound coils of 10,000 turns each) coils of 0.05-mm. Cu wire linked magnetically with those within; there was also a fourth coil of 5000 turns to determine the magnetic moment of the rock-salt, i.e. the magnetic temp. The data obtained at temp.  $< 0.6^\circ$  K. are plotted as graphs of  $y$  versus  $T$  and  $T^2$ , and satisfy the equation  $H_c = H_0[1 - (T/T_c)^2]$ . From the graphs,  $T_c = 0.547^\circ \pm 0.03^\circ$  K.,  $H_0 = 23.4 \pm 0.3$  gauss, and  $y = VH_0^2/2\pi T_c^2 = (1.33 \pm 0.03) \times 10^{-4}$  cal./mole/degree<sup>2</sup>,  $V$  being the atomic vol. These results are in good agreement with those of Alekseevsky and Mironov (*J. Physics U.S.S.R.*, 1947, 11, 83) and of Goodman and Mendosa (*Phil. Mag.*, 1951, [vii], 42, 514; *M.A.*, 19, 817), but the value for  $y$  differs from that obtained by Daunt (*Phys. Rev.*, 1950, [ii], 80, 811; *M.A.*, 19, 106). — G. V. E. T.

*Just-Phys. Problems im. V. V. Gor'kogo*

SAMOYLOV, B. N.

SAMOYLOV, B. N. -- "Measurement of the Heat Capacity of Metals at Very Low Temperatures, (Cadmium 0.3-0.9°K)." Sub 21 Jun 52, Inst of Physical Problems imeni S. I. Vavilov, Acad Sci USSR. (Dissertation for the Degree of Candidate in Physicomathematical Sciences).

SO: Vechernaya Moskva January-December 1952

SAMOYLOV, B. N.

USSR/Physics - Low Temperature, Sealing May 52

"Application of Pastes BF-2 and BF-4 in Experiments at Low Temperatures," B. N. Samoylov

"Zhur Tekh Fiz" Vol XXII, No 5, pp 888, 889

Sealing of elec outlets in equipment for low temps is facilitated by application of BF-2 and BF-4 pastes, which polymerize and become good insulators and do not crack at temp of liquid helium. Letter to the editor.

222T92

SAMOYLOV, B. N.

235T104

USSR/Physics - Low Temperature Studies 11 Sep 52

"Measurement of the Thermal Capacity of Metals at Super-Low Temperatures (Cadmium From 0.3 to 0.9°K)," B. N. Samoylov, Inst of Phys Problems imeni Vavilov, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol 86, No 2, pp 281-284

Finds the thermal capacity of cadmium in the normal state to be given by the following expression:  
 $C = 1.70 \cdot 10^{-4}T + 464.5(T/300)^3 \text{ cal/mol}\cdot\text{grad}$ . Thanks P. G. Strelkov, who was director of the work described here, and N. Ye. Alekseyevskiy; also acknowledges the assistance of S. A. Yakovlev and V. I. Kolokol'nikov. Submitted by Acad L. D. Landau 16 Jul 52.

235T104

SAMOYLOV, D.N.

Chemical Abst.  
Vol. 48 No. 3  
Feb. 10, 1954  
Apparatus, Plant Equipment, and  
Unit Operations

A dilatometer for small-size samples. R. G. Strykov,  
G. I. Kosourov, and B. N. Samoylov. *Izv. Akad. Nauk  
S.S.R., Ser. Fiz. 17, 383 (1953).*—A vacuum dilatometer  
is described for direct and differential readings.  
The small size sample is placed on a polished quartz table  
carried by a quartz tube. A quartz loop terminating with a  
rod through the center of the quartz tube is suspended on the  
sample. The rod carries a steel piece at the bottom part at-  
tracted by a magnetic table in such a way that a small quartz  
wheel carrying a mirror is held between the rod and the  
magnet, and can rotate upon elongation of the rod. The  
sensitivity is  $2 \times 10^{-4}$  mm. The differential device carries 2  
wheels. Measurements of the thermal elongation of quartz  
(cubic pieces with 3 mm. side) are indicated in the region 20-  
525° and the change in coeff. at the transition point  $\alpha \rightarrow \beta$   
of quartz is well shown. A silver of Ag 2.16 mm. long has  
been measured between 21 and 812°. The measurements on  
Ag are in good agreement with other dilatometric measure-  
ments, but are smaller by 8% at high temp. than data ob-  
tained by x-ray analysis. S. Pakser

9-16-53  
JGP

USSR/Chemistry

Card 1/1

Authors : Strelkov, P. G., Tsikovich, E. S., Kostryukov, V. N., Mirskaya, G. G., and Samoylov, B. N.

Title : Thermodynamic investigations at low temperatures. Part 2.- Measurement of specific heat of solids and liquids between 12 and 300° K.

Periodical : Zhur. Fiz. Khim. 28, Ed. 3, 459-472, March 1954

Abstract : A vacuum calorimeter arrangement with screening shields was constructed which enables to measure at low temperatures the specific heat of substances which at room temperature are either in solid or liquid states. The vacuum housing of the calorimeter is sectional because of the sectional vacuum compressor functioning at low temperatures. The installation is equipped with all other auxiliary devices. Calibration is made on the empty calorimeter. The described arrangement enables to conduct measurements in a temperature range of from 12-300° K. Three references. Drawings, graphs.

Institution : Acad. of Sc. USSR, the S. I. Vavilov Institute of Physical Problems and the Moscow State Institute of Weights and Measures

Submitted : June 6, 1953

SAMOYLOV, B. N.  
USSR/Chemistry - Specific Heat

Card 1/1

Authors : Kostryukov, V. N., Alikhanyants, R. A., Samoylov, B. N., and  
Strelkov, P. G.

Title : Termodynamic Studies at Low Temperatures. IV. Methods for Measuring the  
Specific Heat of Condensed Gases.

Periodical : Zhur. Fiz. Khim. Vol. 28, Ed. 4, 650-655, Apr 1954

Abstract : A general description is given of a calorimetric apparatus, used for  
measuring the specific heat of condensed gases at low temperatures,  
and the determination of the volume of gas by means of weighing it  
under condensed condition. Four references; tables; graphs, drawings.

Institution : S. I. Vavilov's Institute of Physical Problems of the AS of the USSR.

Submitted : June 8, 1953

24(0)  
AUTHOR: Khalatinikov, I. M., Doctor of Physical and Mathematical Sciences  
TITLE: Investigations of low-temperature Physics (Isledovaniye po fizike nizkikh temperatur)

## PERIODICAL:

Vestnik Akademii Nauk SSSR, 1959, Nr 2, pp 98-100 (USSR)  
The 5th All-Union Conference on this problem took place in Philissi from October 27 to November 1, 1958. It was attended by physicists from Moscow, Kharkov, Leningrad, Tbilisi, Sverdlovsk, and Kiev. In four fields of low-temperature physics were discussed: superconductivity of liquid helium II, superconducting antiferromagnetics, magnetic-resonance effect. The following reports and communications were heard: A. A. Al'kinashvili reported on the investigation of the properties of superconductive alloys; L. P. Dor'kov, I. M. Khalatinikov spoke of properties of superconductors in the high-temperature stage; V. G. Dzhagava spoke of open ferromagnetic conductors; Yu. M. Zubakov, Yu. A. Kharlamov, and G. V. Tsvetkov spoke of the thermal conductivity of superconductors working at the Institute of Physics of the Chinese Academy of Sciences.

Card 1/4  
Abstract: Two young Chinese scientists working at Novosibirsk University described investigations for determination of the influence exerted by the Coulomb (Kulon) interaction of charges on superconductivity. V. V. Tolmachev explained the nature of the so-called collective excitations of the Josephson type in superconductors. D. M. Zubakov, Yu. A. Kharlamov spoke of the thermodynamics of superconductors and B. T. Devillers, V. F. Krupin of the thermal conductivity of superconductors. Yu. M. Shuridze, V. P. Gunzelscher reported on experimental work with superconductors. V. V. Zaitsevsky spoke of the measurement of the anisotropy of the thermal conductivity in the superconducting state. In a series of reports on the superconducting state, which was set up in 1958 by P. I. Kapitza and the theory of which was set up in 1945 by J. D. Landau, L. D. Landau, and V. D. Labeyko investigated the properties of rotating helium. K. I. Zhelezov spoke of the formation of the boundary between superliquid and non-superliquid helium. G. A. Savchenko, collaborator of the Institute of Metal Physics (Institute of Physico-Chemical Problems) investigated the properties of the so-called jump in temperature of Kapitza. I. M. Lifshits, E. M. Pashchnikov investigated galvanomagnetic phenomena in strong magnetic fields for metals with open Fermi surfaces.

N. Ye. Aleksandrov, Yu. P. Gaidukov experimentally investigated the frequency anisotropy of solid monocrystals in magnetic field. I. S. Kan, B. G. Lazarev spoke of the presence of a temperature minimum with the structural state of the metal. M. Ye. Abusal, reported on the quantum theory of metallic conductivity in the alternating electromagnetic and conduction magnetic fields. A. S. Borodikovich reported on the effect of magnetism in antiferromagnetic samples of MnO<sub>3</sub>, Fe<sub>3</sub>O<sub>4</sub>, Fe<sub>2</sub>O<sub>3</sub>, and ferrimagnetic monocrystals Cu<sub>2</sub>O and Cu<sub>2</sub>O·R<sub>2</sub>O. R. A. Al'tshuler reported on neutronographic investigations of antiferromagnetism.

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B. N. Samoylov

207/35-67-4-7/7

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AUTHOR:

Chentsov, R.

TITLE: The First All-Union Conference on the Physics of Low Temperatures (3-ye Vsesoyuznye sovemstvenye po fizike nizkikh temperatur).

PERIODICAL:

Uspishi fizicheskikh nauk, 1959, Vol. 67, Nr. 4, pp 743-750 (USSR).

ABSTRACT:

This Conference took place from October 27 to November 1 at cheskeiskiy nauk Akademii nauk SSSR (Department of Physico-Mathematical Sciences of the Academy of Sciences, USSR), the Akademii nauk Gruzin'koy SSR (Academy of Sciences, Gruzinskaya SSR), and the Tbil'skayy gosudarstvennyy universitet (TGU).

The Conference was attended by about 200 specialists from Tbilisi, Moscow, Khar'kov, Kiev, Leningrad, Sverdlovsk, and other cities as well as by a number of young Chinese scientists at present working in the USSR. About 50 lectures were delivered, of which were divided according to research fields:

One of the most interesting lectures delivered at this Conference was that by I. A. Gindin, Yu. G. Latacov, Ya. D. Starodubov and V. I. Andreevich (Khri) on the polymorphism of metals at low temperatures. P. L. Kapitza commented on this topic during the discussion. Z. P. Bulavina, V. S. Tozan and N. G. Lashko (Khri) investigated the system hydrogenium-titanium by the methods of low-temperature radiography, thermal analysis, and the visual observation of crystallization. Kh. I. Anzherova, Sh. En. Mairkhanova and R. I. Bashirov investigated the magnetic properties of compounds of the transition elements (chromium, iron, and iron), and dealt with the phenomenon of the "photon wind" predicted by Gurvitch; the investigation was carried out at the Tbil'skayy filial AM SSSR (Tbilisi Branch, AS USSR). N. M. Royev and A. P. Smirnov (Khri) (Institute of Technical Institute) gave a report on the measurement of the electrical resistivity limit of tin- and indium polycrystals at very low temperatures ( $1^{\circ}K$ ) and V. M. Royev and I. Krivov (Khri) spoke about attempts made to find the expected diamagnetic resonance on protons in cuprous oxide. G. R. Khutishvili (Tbilisi Institute of Physics, AM SSSR - Tbilisi State University and Institute of Physics AS Gruzinskaya SSR) carried out a theoretical investigation of the Overhauser effect in indium oxide. Lokteva investigated the electron- and nuclear (proton) resonance in diphenylpicryl hydrazyl at helium temperature. D. A. Samoilov spoke about experiments he carried out concerning the orientation of Co<sub>60</sub>- and Au<sub>10</sub> nuclei (in iron) at extremely low temperatures. B. P. Cakhorebaev (Khri) investigated the absorption spectrum of a proton or of a cuprous oxide crystal in the magnetic field of a magnetic field. V. P. Pankov and N. P. Malov (Institute of Macromolecular Chemistry) reported on the work of Soviet scientists in foreign countries (Spanichnaya nauchnaya konferentsiya), and E. S. Shpol'skiy spoke about the abstractive journal "Visiki".

The head of the department for problems of the Physics of low temperatures, Academician I. E. Ioffe and the President of the Academy of Sciences Gruzinskaya SSR, Academician M. I. Bushelishvili closed the Conference. The 6. All-Union Conference on the Physics of Low Temperatures will be held in June and July 1959 in the city of Sverdlovsk.

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SOV/56-36-2-59/63

AUTHORS: Samoylov, B. N., Sklyarevskiy, V. V., Stepanov, Ye. P.TITLE: The Polarization of the Au<sup>198</sup> Nuclei in a Solution of Gold  
in Iron (Polyarizatsiya yader Au<sup>198</sup> v rastvore zolota v zheleze)PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 2, pp 644-645 (USSR)

ABSTRACT: G. R. Khutsishvili (Ref 1) suggested a method for the polarization of the nuclei of ferromagnetic elements. The authors tried to generalize this method to nuclei of non-ferromagnetic elements introduced into a ferromagnetic. The present paper discusses the results of the investigation of the polarization specified in the title. The sample of the Au-Fe-alloy (0.3 weight percent) - a disk of 0.3 cm diameter and 0.01 cm thickness) was irradiated by thermal neutrons in a reactor. After irradiation, the sample was tempered in vacuum and it was fastened to the end of a copper "cold conductor". Au<sup>198</sup> is desintegrated by β-decay (transition 2<sup>-</sup> → 2<sup>+</sup>) and then a γ-radiation of 411 kev (transition 2<sup>+</sup> → 0<sup>+</sup>) is emitted. At a temperature of ~ 0.015°K, the value of anisotropy is equal to 3.3%. The degree of magnetization of the sample in a constant magnetic field amounted to ~0.6 of the saturation value.

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SOV/56-36-2-59/63

The Polarization of the Au <sup>198</sup> Nuclei in a Solution of Gold in Iron

The true value of the anisotropy (which corresponds to a 100% magnetization of the sample), therefore is equal to  $\epsilon = 3.3/0.6 = 5.5\%$ . According to these results, the value of  $\beta = \mu H/kT I$  is within the interval 0.3 - 0.4, and the polarization  $f$ , of the nuclei Au<sup>198</sup> - within the interval 0.25 - 0.35. ( $\mu$  denotes the magnetic moment of Au<sup>198</sup>,  $I$  - the spin of Au<sup>198</sup>, and  $H$  - the magnetic field on the nucleus Au<sup>198</sup>). At  $T = 0.015$  K, from the measured value  $\beta = 0.3 - 0.4$   $H = (0.5 - 0.7) \cdot 10^6$  Oe. can be deduced. Such a high field strength can be explained only by the existence of a magnetic moment in the electron shell of the Au atoms contained in the Au-Fe alloy. The formation of such a magnetic moment can be caused by the exchange interaction between the electron shells of the Au and Fe atoms in the Au-Fe alloy. It is not impossible, however, that the Au atoms in the Au-Fe alloy are paramagnetic ions which have no exchange bonds with the Fe atoms. It is hoped that the method of introducing nuclei into ferromagnetic alloys considerably increases the number of the elements which are subjected to polarization. Moreover, the investigation of the polarization of nuclei in various alloys may supply data concerning the magnetic properties of the atoms in these

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The Polarization of the Au<sup>198</sup> Nuclei in a Solution of Gold in Iron

SOV/56-36-2-59/63

alloys. There are 3 references, 1 of which is Soviet.

SUBMITTED: November 25, 1958

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24(3), 21(0)

AUTHORS:

Samoylov, B. N., Sklyarevskiy, V. V.,  
Stepanov, Ye. P.

SOV/56-36-5-7/76

TITLE:

Polarization of Cobalt- and Iron Nuclei in Ferromagnetics  
(Polyarizatsiya yader kobal'ta i zheleza v ferromagnetikakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 5, pp 1366-1367 (USSR)

ABSTRACT:

Several years ago Khutsishvili suggested a method for the polarization of the nuclei of ferromagnetic substances, which was verified experimentally at 0.05 - 0.08°K by N. Ye. Alekseyevsky, I. F. Shchegolev and N. V. Zavaritskiy. Similar experiments were successfully carried out also at Oxford. The authors of the present report describe the results obtained by polarization investigations on Co<sup>60</sup> and Fe<sup>59</sup>-nuclei. They worked with the polycrystalline ferromagnetic alloy "Permendure" (Co:Fe=50:50); the sample had a thickness of 0.2 mm and a diameter of 3mm. It was irradiated in a reactor with thermal neutrons, after which it was tempered in a vacuum, following which it was subjected to cold- and magnetic treatment (1000 oe). The

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Polarization of Cobalt- and Iron Nuclei in  
Ferromagnetics

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occurring  $\gamma$ -radiation was recorded by means of two scintillation counters with CsJ-crystals. The activity of the samples amounted to  $3 - 4 \mu\text{C}$ . Several series of measurements were carried out on two samples. The results are shown by a figure, a diagram which represents  $\sqrt{\epsilon}(1/T)$ . It holds that  $\epsilon = 1 - N(0)/N(\pi/\lambda)$ .  $N(0)$  is the number of counts along the field,  $N(\pi/\lambda)$  is the number of counts transverse to the field. The measuring results are scattered about a straight line which may be represented by  $\epsilon = 1.2 \cdot 10^{-4} T^{-2}$ . At very low temperatures a deviation from this law occurs. For  $H = 2.5 \cdot 10^5 \text{ G}$  the authors obtained a value of the constant of hyperfine splitting  $A = 2.4 \cdot 10^{-2} \text{ }^\circ\text{K}$ , which is in good agreement with the values obtained in reference 4. Experiments carried out with respect to the polarization of iron nuclei in Armco iron samples (3 mm diameter, 0.1 mm thickness, activity  $2-3 \mu\text{C}$ ) showed that within the range of from  $0.01 - 0.03$  to  $1 \text{ }^\circ\text{K}$  no anisotropy.

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of  $\gamma$ -radiation could be observed. At  $H = 2.5 \cdot 10^5$  G and  $E \approx 0.5\%$ ,  $\mu$  was determined as amounting to  $\mu \leq 1.5$  nuclear magnetons. The authors finally thank Ye. K. Zavoyiskiy for his interest and advice, and L. V. Groshev for discussing the results. There are 1 figure and 5 references, 2 of which are Soviet.

SUBMITTED: November 25, 1958

Card 3/3

24(3)

AUTHORS:

Samoylov, B. N., Sklyarevskiy, V. V., SOV/56-36-6-56/66  
Stepanov, Ye. P.

TITLE:

Nuclear Polarization of Weakly Magnetic Elements, Introduced  
Into Ferromagnetics (Polyarizatsiya jader slabomagnitnykh  
elementov, vvedennykh v ferromagnetik)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
vol 36, Nr 6, pp 1944-1946 (USSR)

ABSTRACT:

Following an earlier paper (Ref 1) on the polarization of  
 $Au^{198}$ -nuclei in Au-Fe-alloys, the authors in the present  
"Letter to the Editor" publish results obtained by polariza-  
tion measurements of  $Sb^{122}$ -nuclei in weak Sb-solutions in  
iron and of  $In^{114m}$ -nuclei in such In-solutions in Fe. An  
Sb-Fe-alloy (0.6 weight% Sb) was irradiated in a reactor with  
thermal neutrons; the activity of the  $Sb^{122}$  amounted to about  
4  $\mu$ C. The results obtained by one of each of the measurements  
of the anisotropy of  $\gamma$ -radiation carried out are given by a  
figure ( $E_{\gamma} = 566$  kev (transition  $2^+ \rightarrow 0^+$ ),  $\gamma$ -emission after

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Nuclear Polarization of Weakly Magnetic Elements,  
Introduced Into Ferromagnetics

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$\beta$ -decay of Sb<sup>122</sup> (transition  $2^- \rightarrow 2^+$ )). The experimental points show the dependence of the intensity of the  $\gamma$ -rays counted by means of a detector at angles of  $\theta = 0^\circ$  and  $90^\circ$  to the field direction upon time after demagnetization of the salt. Between 5 to 50 min the temperature changed from 0.025 to 0.035° K. 10 minutes after demagnetization a  $\gamma$ -anisotropy of  $\epsilon = 2.5\%$  was measured at a temperature of 0.03° K. ( $\epsilon = 1 - N(0^\circ)/N(90^\circ)$  - N denotes the number of counts at an angle ( $\theta$ )). For In-Fe (0.5 weight% In), the following results are obtained: In<sup>114m</sup>:  $E_\gamma = 192$  kev ( $5^+ \rightarrow 1^+$ ), T (5 min after demagnetization) 0.035° K;  $\epsilon \approx 8\%$  at T = 0.04° K. Further, Cr<sup>51</sup> was investigated in Cr-Fe. Results:  $E_\gamma = 320$  kev ( $5/2^- \rightarrow 7/2^-$ ),  $\gamma$ -emission after K-capture of the Cr<sup>51</sup> ( $7/2^- \rightarrow 5/2^-$ ) within the temperature interval of from 0.03 to 1° K. There follows a short discussion of measurement accuracy and of the results obtained. It may be concluded from these results that the method of the nuclear polarization of weakly magnetic atoms by introducing them into a ferromagnetic has universal character and

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Nuclear Polarization of Weakly Magnetic Elements,  
Introduced Into Ferromagnetics SOV/56-36-6-56/66

renders it possible to attain relatively high degrees of polarization. The authors finally thank Ye. K. Zavoyskiy for his valuable advice, L. D. Puzikov for his assistance in calculating the angular distribution of  $\gamma$ -radiation, and L. V. Groshev, V. M. Galitskiy, and D. P. Grechukhin for discussions. There are 1 figure and 4 references, 1 of which is Soviet.

SUBMITTED: March 10, 1959

Card 3/3

SAMOYLOV, B. N.,

"Polarization of Nuclei of Weakly Magnetic Elements Introduced in Ferromagnets."

report submitted for the Intl. Conference on Low Temperature Physics, IUPAP,  
Toronto, 29 Aug-3 Sep 60.

SAMOYLOV, B.N.; SKLYAREVSKIY, V.V.: STEPANOV, Ye.P.

Polarization of the nuclei of diamagnetic elements dissolved in  
iron. Zhur.eksp.i teor.fiz. 38 no.2:359-371 F '60. (MIRA 14:5)  
(Diamagnetism) (Nuclei, Atomic)

SAMOYLOV, R.N.; SKLYAREVSKIY, V.V.; GOROBCHENKO, V.D.;  
STEPANOV, Ye.P.

Asymmetry of the beta radiation from Co 60 nuclei polarized in  
a cobalt-iron alloy. Zhur. eksp. i teor. fiz. 40 no.6:1871-  
1874 Je '61. (MIRA 14:8)

(Beta rays)  
(Cobalt-Isotopes)  
(Cobalt-Iron alloys)

SKLYAREVSKIY, V.V.; SAMOYLOV, B.N.; STEPANOV, Ye.P.

Temperature dependence of the magnitude of the hyperfine  
splitting of Dy<sup>161</sup> levels in paramagnetic dysprosium oxide.  
Zhur. eksp i teor. fiz. 40 no.6:1874-1876 Je '61.  
(MIRA 14:8)

(Dysprosium--Isotopes)

(Dysprosium oxide--Magnetic properties)

S/056/61/041/006/018/054  
B102/B138

AUTHORS: Samoylov, B. N., Sklyarevskiy, V. V., Gorobchenko, V. D.

TITLE: Determination of the sign of the local magnetic field on nuclei of gold dissolved in iron or nickel

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,  
no. 6(12), 1961, 1783-1786

TEXT: In a previous paper (Ref. 2: ZhETF, 40, 1871, 1961) the authors have reported on a method of determining the magnitude and sign of a local magnetic field from the asymmetry in angular distribution of the  $\beta$ -radiation of polarized nuclei. Theoretical problem are discussed first. The asymmetry, which is defined as  $\xi_\beta = [N(0)-N(\pi)]/N_0$ , where  $N_0$  denotes the isotropic count, is given by

$$\xi_\beta \approx -\frac{1/\tau + 2\sqrt{\tau_s}\lambda/\mu}{1 + (\lambda/\mu)^2} \frac{\rho \mu_s H_n}{W} \frac{1}{T}. \quad (4);$$

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$p = \sqrt{w^2 - 1}$  is the electron momentum,  $\lambda$  and  $\mu$  are parameters, linear combinations of the nuclear matrix elements as defined by Morita-Morita (Phys. Rev. 109, 2048, 1958),  $\mu_s$  is the nuclear magnetic moment and  $H_a$  the local field. The experimental arrangement has been described in Ref. 2. After activation by thermal neutrons the specimens, containing ~0.3% by weight gold and ~1% by weight iron and nickel, respectively, were annealed at ~1000°C for 2-3 hr.  $\varepsilon_1$  was plotted as a function of  $1/T$  and after corrections had been incorporated, it was found from the gradient of the straight lines that:  $\varepsilon_1 = -(8.9 \pm 0.3) \cdot 10^{-3} T^{-1}$  for gold in iron and  $\varepsilon_1 = -(1.6 \pm 0.1) \cdot 10^{-3} T^{-1}$  for gold in nickel. With Eq. (4) the following was found

$$H_a = (6.2 \pm 0.2) \frac{1 + (\lambda/\mu)^2}{1/\mu + 2\sqrt{1/\mu}\lambda/\mu} \cdot 10^6 \text{ Oe}; \quad H_a = (1.1 \pm 0.07) \frac{1 + (\lambda/\mu)^2}{1/\mu + 2\sqrt{1/\mu}\lambda/\mu} \cdot 10^6 \text{ Oe.} \quad (A)$$

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for gold in iron and gold in nickel, respectively. With R. M. Steffen's value  $\lambda/\mu = -1+0.7$  (Phys. Rev. 118, 763, 1960) the local field strength  $H_s \approx -1.0 \cdot 10^6$  oe is calculated for iron and is in agreement with earlier measurements by the authors (ZhETF, 38, 359, 1960). In nickel it is  $\approx 1.8 \cdot 10^5$  oe, which is 5.6 times less, but in both cases it is in the opposite direction to the domain field. This could either be attributed to the contact field of the inner s-shells electrons or to contact interaction with polarized electrons. The latter, however, is in contradiction with results by Ye. I. Kondorskiy (ZhETF, 40, 381, 1961). The authors thank Ye. K. Zavoyksiy, L. V. Groshev, Ya. A. Smorodinskiy, D. P. Grechukhin, D. F. Zaretskiy, Yu. M. Kagan and L. D. Puzikov for discussions and O. A. Chilashvili, V. N. Agureyev, N. V. Razzhivin, I. B. Filippov, N. Ye. Yukovich, V. A. Drozdov and V. D. Sheffer for assistance. There are 2 figures and 8 references: 4 Soviet and 4 non-Soviet. The four most recent references to English-language publications read as follows: B. N. Samoilov et al. Proc. VII Int. Conf. Low Temp. Physics, Toronto, 1960, p. 171; L. D. Roberts, J. O. Thomson. Bull. Amer. Phys. Soc., 6, 230, 1961; Card 3/4

S/056/61/041/006/018/054  
B102/B138



Determination of the sign of the local ...

D. A. Goodings, V. Heine. Phys. Rev. Lett., 5, 370, 1960; A. J. Freeman,  
R. E. Watson. Phys. Rev. Lett., 5, 498, 1960.

SUBMITTED: July 17, 1961

Card 4/4

BORODICH, V. D., KONSTANT, A. K., WILHELM, V. M., Golub, A. P., NURKIN, M. G.,  
MEROZ, N. K., and SAMOYLOV, E. N.

6

"Critical current for Nb-Zr ribbons in external magnetic field."  
report to be submitted for the 8th Intl. Conf. on Low Temperature Physics (IUTAP)  
London, England, 16-22 Sep 62.

SAMOYLOV, B. N., SKLYAREVSKIY, V. V. and GOROBCHENKO, V. D.

"The sign of the local magnetic field on nuclei of gold dissolved in iron and nickel"

report to be submitted for the 8th Intl. Conf. on Low Temperature Physics (IUPAP)  
London, England, 16-22 Sep62

SAMOYLOV, B. N., STEPANOV, YE. P., SKYLAREVSKIY, V. V., AND ALESHIN, K. P.,  
GOROBCHENKO, V. D., and LUKASHEVICH, I. I.,

"Unsplit Absorption line of Dy<sup>161</sup> of Natural Width in Dy<sub>2</sub>O<sub>3</sub> at t = 500°C,"

report presented at the 3rd Intl. Conf. on the Mossbauer Effect, Cornell Univ.,  
New York, 4-7 Sep 63

BORODICH, V.D.; GOLUB', A.P.; KOMBAROV, A.K.; KREMELEV, M.G.; MOROZ, N.K.;  
SAMOYLOV, B.N.; FIL'KIN, V.Ya.

Critical currents of Nb-Zr alloys in an external magnetic field. Zhur. eksp. i teor. fiz. 44 no.1:110-115 Ja '63.  
(MIRA 16:5)

(Niobium-Zirconium alloys—Electric properties)  
(Magnetic fields)

L 16552-55 EWT(1)/EEG(t) Feb ESD(t)/ESD(gs)/AEDC(a)/SSD/AFWL/AS(mu)-2/  
rJP(c)  
ACCESSION NR: AP4044667 S/0120/64/COC/004/0043/0049

AUTHOR: Aleshin, K. P.; Lukashevich, I. I.; Samoylov, R. N.  
Skiyarevskiy, V. V.; Stepanov, Ye. P.; Filippov, N. I.

TITLE: System for investigating the Mossbauer effect

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1964, 43-49

TOPIC TAGS: Mossbauer effect, Mossbauer effect investigation, vi-  
brator, aerodynamic vibrator, Mossbauer spectrum, gamma ray, gamma  
ray source

ABSTRACT: The proposed system, in which motion is produced by a  
special electrodynamic vibrator at a constant velocity of up to  
~8 cm/sec, was designed for investigating the Mossbauer effect. The  
low amplitude of source motion (1-2 mm) makes it possible to conduct  
both the absorption and the dispersion measurements of the Mossbauer  
spectra. The electrodynamic vibrator, which is described in detail,  
provides for a constant velocity within ± 1%. The vibrator makes it  
possible to conduct measurements at frequencies of up to 20 cps. The  
maximum velocity of 8 cm/sec is achieved at 16 cps. The electronic  
part of the system provides for registration by means of a NaI (Tl)  
crystal and a photomultiplier of γ-quanta passing through a resonant  
absorber. From the photomultiplier the pulses are applied to a single-  
channel analyzer whose window is directed toward the photopeak of the

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ACCESSION NR: AF4044667

$\gamma$ -rays investigated. The equipment is designed so as to make it possible to change the measurement time easily and to pass from one operating frequency to another. The resolution time of the registration channel is  $\sim 1$  usec. The characteristics and velocity calibration of the system were studied by measuring the absorption spectrum of Fe<sup>57</sup>  $\gamma$ -rays with an energy of 14.4 kev. The source was Co<sup>57</sup>, and the absorber was Fe<sub>2</sub>O<sub>3</sub>. Measurements of the line drift have shown that after heating the system for 2 hr, the drift in velocity does not exceed  $\pm 0.5\%$  for 8 hr of operation. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 23Jul63

ENCL: 00

SUB CODE: EM, EC, NF

NO REF SOV: 003

OTHER: 003

Card 2/2

L 1848-66 EWT(1)/EWT(m)/EPF(n)-2/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/  
EWA(c) IJP(c) GG/JD/WW/HW/JG  
ACCESSION NR. AT5022418 UR/3136/64/000/675/0001/0018 83  
44,55 44,55 44,55

AUTHOR: Kremlev, M. G.; Samoylov, B.N.; Skulachenko, S.S. 44,55

TITLE: Device for studying local critical parameters of long sections of superconducting wire 1 44,55

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-675, 1964. Ustanovka  
dlya issledovaniya lokal'nykh kriticheskikh parametrov bol'skikh dlin sverkhprovo-  
dyashchey provoloki, 1-18

TOPIC TAGS: superconducting alloy, niobium alloy, zirconium alloy, external  
magnetic field, induced current

ABSTRACT: The device described is designed for studying the uniformity of values of the critical currents in long (up to 15 m) sections of superconducting wire, measured upon application of a local external magnetic field of up to 40 kOe to a small part of the wire. A detailed description of the parts and operation of the device is given. The device was used to study several sections of a superconducting wire composed essentially of a 50:50 Nb-Zr alloy, which after cold drawing was subjected to an additional vacuum heat treatment. The critical current was found to change by a factor of 2 over distances of a few meters. Besides these comparatively slow

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ACCESSION NR: AT5022418

variations in critical current, fairly substantial (up to 30%) local declines of the current were observed at distances of a few millimeters. "The authors thank Academician I. K. Klikoin<sup>44,55</sup> for steady interest in the work and valuable comments, N. V. Razzhivin, N. I. Filippov<sup>44,55</sup>, and D. I. Dolgii<sup>44,55</sup> for assistance in the preparation of the device and for performing the experiments, and also V. A. Drozdov, V. D. Sheffer, and N. Ye. Yukovich for supplying the liquid helium." Orig. art. has: 7 figures.<sup>44,55</sup>

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM, IE

NO REF SOV: 000

OTHER: 004

Card

2/2

L 5326-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JW/GG  
ACCESSION NR: AP5021109 UR/0056/65/049/002/0456/0458  
103

AUTHORS: Panova, G. Kh.; Samoylov, B. N. 44,55 73  
8

TITLE: Experimental detection of an anomaly in the specific heat of  
a metal with heavy impurity atoms

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49,  
no. 2, 1965, 456-458

TOPIC TAGS: specific heat, magnesium, solid solution, lead containing  
alloy, crystal impurity, Debye temperature 21  
21,44,55

ABSTRACT: An anomaly in the behavior of the specific heat, predicted  
in general form by Yu. Kagan and Ya. Iosilevskiy (ZhETF v. 45, 819,  
1963) for crystals containing heavy impurity atoms, was detected  
experimentally in the alloy MgPb (2.8 atomic per cent Pb). The  
measurements were carried out on polycrystalline samples of pure Mg  
and of the alloy, which was a substitutional solid solution with  
hexagonal lattice, similar in its parameters to the Mg lattice. The  
measurements were made on cylindrical samples 50 mm in diameter and

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50 cm long, using an adiabatic calorimeter. The measurement procedure is described in detail. The measurements were made in the temperature range 1.2 -- 20K. From a study of the obtained plots of the specific heat against the temperature, the authors calculate the coefficients of the electronic specific heat and the Debye temperature which are found to be respectively 1.31 millijoule/mole-

$\text{deg}^2$  and  $311 \pm 10\text{K}$  for Mg and  $1.11 \text{ millijoule/mole-deg}^2$  for MgPb. A plot of the relative specific heat against the ratio of the temperature to the Debye temperature shows the former to have a maximum near 10.6K. The results thus confirm the effect observed by Kagan and Iosilevskiy. Small additions of a heavy impurity in a light lattice changed the specific heat of the crystal lattice very strongly, with 2.8 atomic per cent of Pb leading to a doubling of the specific heat at 10.6K. The authors thank Yu. Kagan<sup>44</sup> and N. A. Chernoplekov for useful discussions and continuous interest in the work, M. N. Andriyanov<sup>44</sup>, V. A. Zinov'yev<sup>44</sup>, V. I. Kutaytsev<sup>44</sup>, and N. T. Chebotarev<sup>44</sup> for preparing and analyzing the samples, N. P. Orlov and D. N. Astrov<sup>44</sup> for supplying the graduated semiconductor thermometer, V. Ye. Keylid<sup>44</sup> for

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ACCESSION NR: AP5021109

2

for help in the construction of the instrument, and V. G. Ovchinnikov  
for help with the experiments.' Orig. art. has: 2 figures and 2 formulas.

ASSOCIATION: None

SUBMITTED: 25Mar65

ENCL: 00

SUB CODE: SS, TD

NR REF Sov: 002

OTHER: 000

Card 3/3 *mid*

SOV/124-57-8-9520

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 8, p 135 (USSR)

AUTHOR: Samoylov, B. N.

TITLE: Frame Analysis Based on Influence Coefficients (Raschet ram po  
koefitsiyentam vliyaniya)

PERIODICAL: Tr. Kuybyshevsk. inzh.-stroit. in-t, 1957, Nr 4, pp 65-71

ABSTRACT: Bibliographic entry

Card 1/1

AKRIDIN, Dmitriy Vladimirovich, starshiy prepodavatel'; GALKANOVA, Nina Dmitriyevna, assistent; GVOZDOVSKIY, Viktor Il'ich, assistent; GLUKHOVSKOV, Aleksandr Petrovich, inzh.; SAMOYLOV, Boris Niko-layevich, dotsent, kand.tekhn.nauk; YAKUBOVSKIY, Boris Vasil'-yevich, prof. Prinimali uchastiye: POLONSKIY, A.V., assistent; LEONT'YEV, G.V., assistent; BITYUTSKIY, A.I., assistent; DAVYDOV, S.S., doktor tekhn.nauk, prof., red.; MIKHAYLOV, K.V., kand.tekhn. nauk, nauchnyy red.; BUDARINA, E.M., red. izd-va; GARNUKHIN, Ye.K., tekhn. red.

[Prestressed concrete abroad; materials] P redvarietel'no napriazhennyi zhelezobeton za rubezhom; materialy. Pod red. S.S. Davydova i B.V. IAkubovskogo. Moskva, Gos. izd-vlo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 343 p. (MIRA 14:10)

1. International Congress of Prestressed Concrete. 3rd, Berlin, 1958.
2. Deystvitel'nyy chlen Akademii stroitel'stva i arkitektury SSSR (for Davydov). 3. Kafedra zhelezobetonykh i kamennykh konstruktsiy Kuybyshevskogo inzhenerno-stroitel'nogo instituta i chleny Kuybyshev-zhelezobetonomu Akademii stroitel'stva i arkitektury SSSR (for Akridin, Galkanova, Gvozdovskiy, Glukhovskov, Samoylov, Yakubovskiy)  
(Prestressed concrete)

YAKUBOVSKIY, B.V., prof., red.; SAMOYLOV, B.N., dots., kand. tekhn. nauk, red.; PETROPOL'SKAYA, N.Ye., red.; DURASOVA, V.M., tekhn. red.

[Reinforced concrete structures; experimental and theoretical studies] Zhelezobetonnye konstruktsii; eksperimental'no-teoreticheskie issledovaniia. Sbornik statei pod red. B.V. Iakubovskogo, B.N.Samoilova. Kuybyshev, Kuybyshevskoe knizhnoe izd-vo, 1963. 20. p. (MIRA 16:8)

1. Kuybyshev. Inzhenerno-stroitel'nyy institut.  
(Reinforced concrete construction)

STAVRAKI, L.N.; YEPANCHINTSEVA, I.A.; BELYANKIN, F.P., akademik,  
retsenzent; VAYNBERG, D.V., prof., doktor tekhn. nauk,  
retsenzent; SAMOYLOV, B.N., red.

[Simple theory for the calculation of rods under an  
extended load] Prosteishaiia teoriia rascheta sterzhnei na  
prostranstvennuiu nagruzku; uchebnice posobie dlja studentov.  
Kuibyshev, Kuibyshevskii inzhenerno-stroitel'nyi inst im.  
A.I.Mikheiana, 1963. 54 p. (MIRA 17:7)

1. Akademiya nauk Ukr.SSR (for Belyankin).

SAMOYLOV, B.N., dcts.; BITYUTSKIY, A.I., inzh.; YAKOVIEVA, M.V.,  
kand. tekhn. nauk, red.

[Calculation of suspension and guy supported roofs; a  
textbook for course and diploma projects for students  
majoring in "Industrial Construction and Civil Engineering"] Raschet visiachikh i vantovykh pokrytii; uchebno-  
posobie dlia kursovogo i diplomnogo proektirovaniia stu-  
dentov spetsial'nosti "Promyshlennoe i grazhdanskoe  
stroitel'stvo." Kuibyshev, Jiibyshevskii inzhenerno-  
stroitel'nyi in-t, 1964. 89 p. (MIRA 18:4)

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TITLE: Mossbauer effect on Dy<sup>161</sup> impurity nuclei in metallic gadolinium

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ABSTRACT: Irradiation of metallic gadolinium in a reactor (97% Gd<sup>160</sup>) gives rise to the reaction Gd<sup>160</sup>(n $\gamma$ )Gd<sup>161</sup>  $\xrightarrow{3.7 \text{ min}} \text{Tb}^{161}$ , and the decay of the Tb<sup>161</sup> causes emission of  $\gamma$  rays of Dy<sup>161</sup>. The authors investigated the Mossbauer spectra of such a source, constituting in fact Dy<sup>161</sup> impurity nuclei in a gadolinium lattice. The magnetic properties of the gadolinium matrix were investigated by studying the hyperfine splitting of the  $\gamma$  rays of these Dy<sup>161</sup> nuclei.

The absorber used was polycrystalline Dy<sub>2</sub>O<sub>3</sub> (40 mg/cm<sup>2</sup>, 90% Dy<sup>161</sup>). At T = 300°K, the Dy<sub>2</sub><sup>161</sup>O<sub>3</sub> has a "thick" absorption line ( $\sim 1 \text{ cm/sec}$ ,  $\Gamma_{\text{nat}} = 0.02 \text{ cm/sec}$ ), which is suitable, however, for the study of large magnetic hyperfine splittings of the source ( $\sim 25 \text{ cm/sec}$ ). A Mossbauer spectrometer was used with a permanent-magnet vibrator, operating in

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At  $T = 5^{\circ}\text{K}$  the spectrum is the usual hyperfine splitting spectrum of  $\text{Dy}^{161}$ , consisting of 14 lines (not all lines are resolved). The magnitude of the magnetic splitting corresponds to a field  $\sim 7.3 \times 10^3$  Oe on the Dy nuclei. At  $T = 16^{\circ}\text{K}$  the number of lines increases, and at  $T = 30^{\circ}\text{K}$  it assumes the previous value, but the relative intensity of the central peak increases sharply compared with the spectrum at  $5^{\circ}\text{K}$ . With further rise in temperature the magnetic splitting decreases gradually and finally vanishes near the Curie point of gadolinium.

This behavior of the spectra can be explained as follows. At  $T = 5^{\circ}\text{K}$  there are two different systems of lines (two different spectra) with approximately identical hyperfine splitting. With increasing temperature, the magnetic splitting of one of these spectra decreases rapidly and vanishes at  $T = 30^{\circ}\text{K}$ . The lines of the spectra are crowded together and enter the central peak, thus increasing its intensity. Measurements of individual spectral lines at  $T = 7.5$  and  $10^{\circ}\text{K}$  have made it possible to trace the broadening and the splitting of the spectral lines at  $5^{\circ}\text{K}$ . In addition, we measured the individual lines of the spectrum at  $T = 5^{\circ}\text{K}$  with an absorber heated to  $T = 800^{\circ}\text{K}$  and having a narrower line than at  $T = 300^{\circ}\text{K}$ . These measurements have shown that the spectral lines at  $5^{\circ}\text{K}$  are doublets, i.e., this spectrum consists of two different spectra with somewhat differing hyperfine splittings. Two systems of hyperfine splittings were found to correspond to two different states of the electron shell of the Dy ions, produced in the  $\beta$  decay of  $\text{Tb}^{161}$ . A distinctive feature of this case is that it is observed in a metal, where the relaxation times of the electron shell should seemingly be small. Figure 2 shows the temperature dependence of the

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fields on the Dy<sup>161</sup> nuclei, corresponding to these two systems of hyperfine splitting. For T = 200 and 273°K, H<sub>nuc</sub> was obtained from the position of the outermost lines of the spectrum. The H<sub>nuc</sub>(T) for the second system vanishes near the Curie point of gadolinium. The variation of H<sub>nuc</sub>(T) for the first system apparently shows that the corresponding Dy ions behave like paramagnetic ions in gadolinium. Reduction of the spectra of Fig. 1 yielded for the ratio of the magnetic and quadrupole moments of the first-excited and ground states values  $\mu_*/\mu_0 = -1.2 \pm 0.1$  ( $\mu_0 = -0.37 \pm 0.05$ ),  $Q_*/Q_0 = 0.85 \pm 0.1$ . The quadrupole splittings W = (1/4)eqQ<sub>0</sub> at temperatures 30 and 80°K turned out to be  $660 \pm 60$  and  $530 \pm 50$  Mcs. The authors thank I. B. Filupov for help; N. E. Yukovich, V. A. Drozdov, and V. S. Sheffer for supplying the liquid helium; Yu. Kagan and A. M. Afanas'yev for discussion of the results; and V. Ye. Keylin for help in constructing the cryostat. Orig. art. has: 2 figures.

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